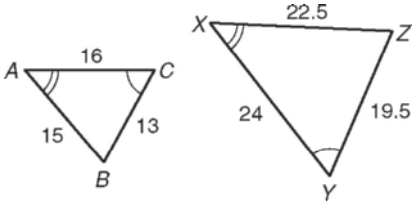
Name _____ Date _____ Class _____

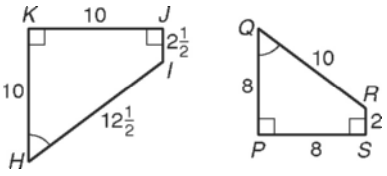
LESSON 7-2

Practice B

Ratio in Similar Polygons

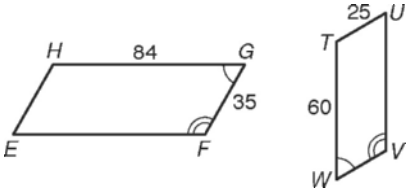
Identify the pairs of congruent corresponding angles and the corresponding sides.

1. 

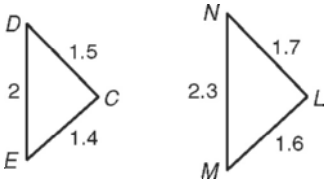
2. 

Determine whether the polygons are similar. If so, write the similarity ratio and a similarity statement. If not, explain why not.

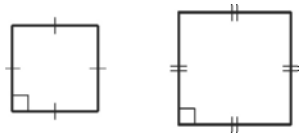
3. parallelograms *EFGH* and *TUVW*

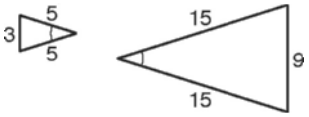


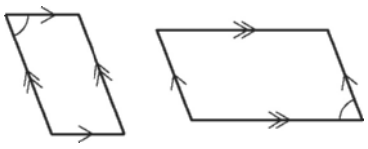
4. △*CDE* and △*LMN*

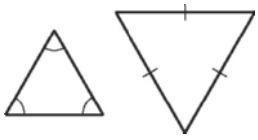


Tell whether the polygons must be similar based on the information given in the figures.

5. 

6. 

7. 

8. 

4. 36.6 in. by 20.6 in.

5. A
6. H
7. B
8. G

Reading Strategies

1. the length of the smaller painting
2. $\frac{\boxed{36 \text{ in.}}}{\boxed{30 \text{ in.}}} = \frac{\boxed{x}}{\boxed{4 \text{ in.}}}$
3. (36 in.)(4 in.) = (30 in.)(x)
4. $x = 4.8$ in.
5. 4.8 in.

LESSON 7-2

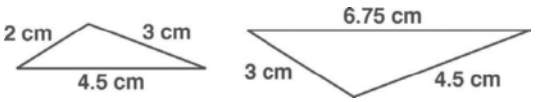
Practice A

1. corresponding
2. congruent; proportional
3. size
   $\angle E$
4. $\angle F$
   $\angle D$
5. $\frac{AB}{FE} = \frac{CB}{DE} = \frac{AC}{FD}$
6. $\triangle RSQ \sim \triangle KJL$
7. $\frac{RS}{KJ} = \frac{SQ}{JL} = \frac{QR}{LK}$
8. Possible answer: Every angle in a rectangle is a right angle, and all right angles are congruent.
9. $\frac{4}{5}$
10. $\frac{8}{10}$; $\frac{4}{5}$

Practice B

1. $\angle A \cong \angle X$; $\angle B \cong \angle Z$; $\angle C \cong \angle Y$; $\frac{AC}{XY} = \frac{AB}{XZ} = \frac{BC}{ZY} = \frac{2}{3}$
2. $\angle H \cong \angle Q$; $\angle I \cong \angle R$; $\angle J \cong \angle S$; $\angle K \cong \angle P$; $\frac{KJ}{PS} = \frac{KH}{PQ} = \frac{HI}{QR} = \frac{JI}{SR} = \frac{5}{4}$
3. yes; $\frac{7}{5}$; Possible answer: $\square EFGH \sim \square WTUV$
4. No; sides cannot be matched to have corresponding sides proportional.
5. yes
6. yes
7. no
8. yes

Practice C

1. Possible answer: It is given that $\triangle DEF$ is the midsegment triangle of $\triangle ABC$. Therefore $\overline{EF}$, $\overline{DF}$, and $\overline{DE}$ are midsegments. By the Triangle Midsegment Theorem, $DF = \frac{1}{2}(AC) = AE$ and $DE = \frac{1}{2}(AB) = AF$. By the definition of congruent segments, $\overline{DF} \cong \overline{AE}$ and $\overline{DE} \cong \overline{AF}$. $\overline{EF}$ is congruent to itself, so $\triangle AFE$ is congruent to $\triangle DEF$ by SSS. Also by the Triangle Midsegment Theorem, $\overline{EF} \parallel \overline{CB}$. Corresponding angles are congruent, so $\angle AEF \cong \angle C$ and $\angle AFE \cong \angle B$. By CPCTC, $\angle EDF \cong \angle A$, $\angle DEF \cong \angle AFE$, and $\angle DFE \cong \angle AEF$. Then by the Transitive Property, $\angle DEF \cong \angle B$ and $\angle DFE \cong \angle C$. So the corresponding angles of $\triangle DEF$ and $\triangle ABC$ are congruent. By the Triangle Midsegment Theorem, $EF = \frac{1}{2}(BC)$ and, as stated earlier, $DF = \frac{1}{2}(AC)$ and $DE = \frac{1}{2}(AB)$.
2. 

3. No, they are not congruent because they have different side lengths.
4. Yes, they seem similar. The measures of corresponding angles appear to be the same, and the corresponding sides are all in the ratio $\frac{2}{3}$.
5. three pairs

Reteach

1. $\angle J \cong \angle M$; $\angle K \cong \angle N$; $\angle L \cong \angle P$; $\frac{JK}{MN} = \frac{KL}{NP} = \frac{LJ}{PM} = \frac{4}{3}$
2. $\angle A \cong \angle Q$; $\angle B \cong \angle R$; $\angle C \cong \angle S$; $\angle D \cong \angle T$ $\frac{AB}{QR} = \frac{BC}{RS} = \frac{CD}{ST} = \frac{DA}{TQ} = \frac{1}{2}$
3. yes; $\frac{2}{3}$; $\triangle EFG \sim \triangle HJK$